

CLAIMS

1. A polymer with dispersed fine metal particles in which fine metal particles are dispersed in an organic polymer, wherein:

said polymer with dispersed fine metal particles is obtained by intercalation of a metal ion between layers of a lamellar crystalline organic polymer having an acidic group, and subsequent reduction.

2. A polymer with dispersed fine metal particles according to claim 1, wherein said lamellar crystalline organic polymer is a polymer of a diene having a carboxyl group.

3. A polymer with dispersed fine metal particles according to claim 1 or 2, wherein said lamellar crystalline organic polymer comprises an ammonium carboxylate group.

4. A polymer with dispersed fine metal particles according to any one of claims 1 to 3, wherein the fine metal particles are at least one type of particles selected

from transition metals.

5. A polymer with dispersed fine metal particles according to any one of claims 1 to 4, wherein the fine metal particles are at least one type of particles selected from the group consisting of silver, gold and platinum group elements.

6. A method for producing a polymer with dispersed fine metal particles in which metal fine particles are dispersed in an organic polymer, comprising the steps of:

preparing a metal ion-containing polymer having a structure in which the metal ion is intercalated between layers of a lamellar crystalline organic polymer having an acidic group, by mixing the lamellar crystalline organic polymer containing the acidic group and/or ammonium salt thereof with a substance containing the metal ion; and

reducing the metal ion in said metal ion-containing polymer so as to obtain the fine metal particles.

7. A method for producing a polymer with dispersed fine metal particles according to claim 6, wherein the metal ion is reduced by photoreduction, in case said metal ion is silver or gold ion.

8. A method for producing a polymer with dispersed fine metal particles according to claim 6, wherein said metal ion is reduced by a reducing agent, in case said metal ion is cation of platinum group element.

9. A method for producing a polymer with dispersed fine metal particles according to claim 6, wherein said crystalline organic polymer is a polymer of a diene having a carboxylic group.

10. A metal ion-containing polymer having a structure in which metal ion is intercalated between the layers of a lamellar crystalline organic polymer having an acidic group.

11. A metal ion-containing polymer according to

claim 10, wherein the crystalline organic polymer is a polymer of a diene having a carboxylic group.

12. A metal ion-containing polymer according to claim 10 or 11, wherein the metal ion is at least one kind of metal ions selected from the group consisting of alkali metals, silver, gold and platinum group element.

13. A method for producing a metal ion-containing polymer comprising the step of:

mixing a lamellar crystalline organic polymer containing an acidic group or ammonium salt thereof with a substance containing a metal ion.

14. A method for producing a metal ion-containing polymer according to claim 13, wherein said substance containing the metal ion is a metal hydroxide.

15. A method for producing a metal ion-containing polymer according to claim 13 or 14, wherein the step of mixing is conducted by impregnating or dispersing said

crystalline organic polymer in the solution containing said substance containing the metal ion.

16. A method for producing a metal ion-containing polymer according to claim 13, the method comprising the steps of:

in case where said metal ion is other than alkali metal ions,

preparing an alkali metal ion-containing polymer in which alkali metal ion is intercalated between the layers of the lamellar crystalline organic polymer by mixing said lamellar crystalline organic polymer with the substance containing an alkali metal ion, and

ion-exchanging the alkali metal ion in the polymer with a metal ion other than the alkali metal ion.

17. A method for producing a metal ion-containing polymer according to claim 16, wherein the step of ion-exchanging is conducted by impregnating said polymer containing the alkali metal ion in a solution of a substance containing the metal ion other than the alkali

metal ion.